Notebook, N-02-02-09

This notebook was used during February 1902. All entries are by Edison. The book contains notes and drawings regarding several experiments that deal mainly with electricity, matter and energy, and physical theory. There are entries pertaining to x-rays, motographs, telephones, phonographs, and electric furnaces, together with notes on "instruments to detect different waves in the 'ether.'" Many entries contain the notation, "gave to John Ott." Inserted into the book are several pages of notes by Edison, including a 3-page note listing various theories of the ether. The pages are unnumbered. Approximately 120 pages have been used.

N-02-02-09

7.6

314
7.5
0
157
229 8
2 3.1 37 0

314
7.6
1884
198
2198
2384

314
7.75
0
157
198
219
2198
243.350

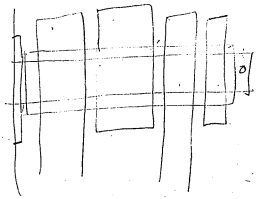
675
314
2700
675
2025
2119 50

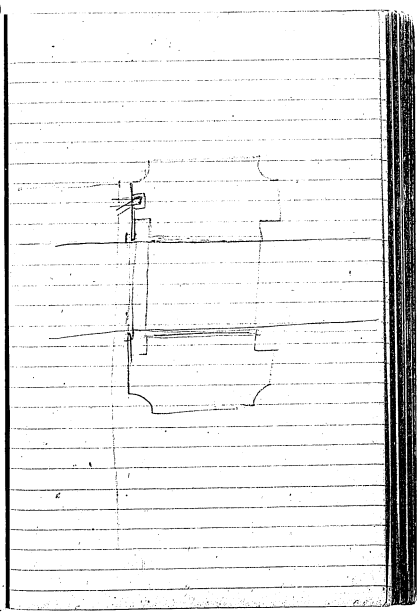
314
7.65
0
157
1884

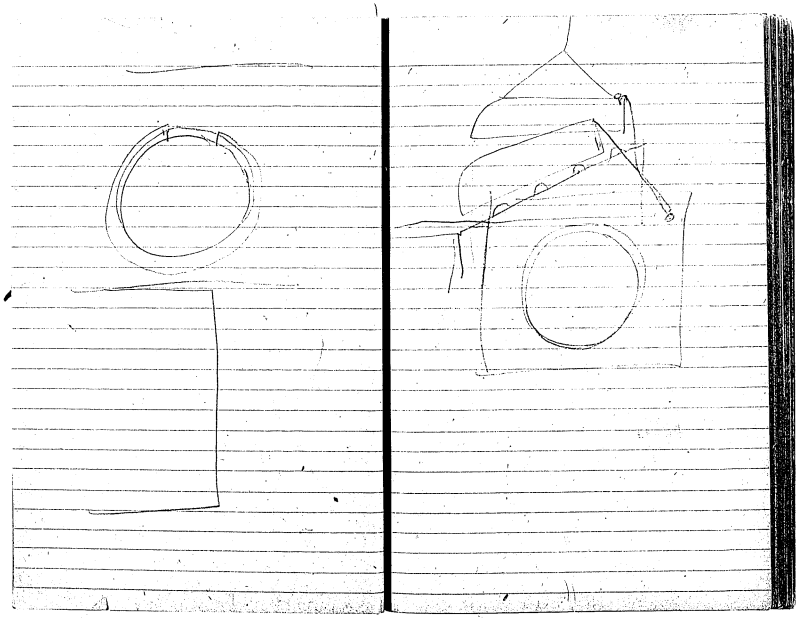
314
7.72198
0
2198 24021
2198
1417

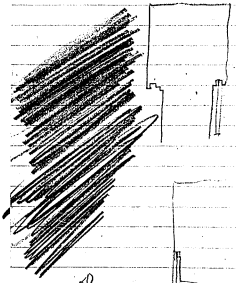
7.65

150,000,000,000,000,000









60 25
25 Hour
25 30

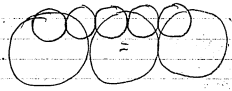
50 15

15.

12000
2220
240
240
240
240

36
6000
1600
2660
824
360
1440
1440

1600 | 2.88



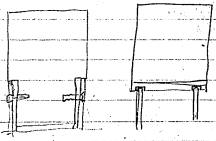
1500
750
750
300
300
300

135 | 2.2

25
675
750

15
50
75

25



220
1750
2000
135
2345 (718
300 14) 21 30
24 300

26
1800
2080 (650
26 40
432
3
72)

200
6000
12015

22
5
10

16
160
96
16 60
216
140
80
16
240

1000
30
72) 3000 (416
288 650
120 1066
72
48

2800

18

Notes X

Calcium Niobate.

2 CaO Nb2O5 – fuming pent ox with large green crystals, | CaCl

Probably possesses Fergusonite or Columbite with CaCl + also some NaCl –

Watt 3rd S 1394 –
p 1392 – Indicates Niobium giving Vapor pent ohl Nb through red hot tube when heated with H – sheets steel gray color

Might try Samarskite powder with | CaCl + NaCl have Niobium Tantalum Tungsten Yttria Cerium Uranium Manganese Fe Magnesia – Some of the Crystals would be formed

putting phos in Vac + then
heating it sublimes +
in several days crystalizes
in a dog kind of Crystals
as Iridiopsis or diamond
but get opaque if exposed to
Light — of Chloroscope

Try fulminate Hg from
gun Cap for of Chloroscope

phosphorus Tungstic acid
forms salts,
should make phosphorus tungstate
of Calcium 3rd with
Sep 1656

Gadolinite has Lt
rare minerals in it
fuse

fuse the Samarskite + gadolinite
+ monazite sand seperately
in Carbonate Soda

Then make Silicate Soda +
dissolve the oxides — Then
mix & Hydrochloric & do &

Cerite - has Didymium

In addition try combining
Tungsten with the rare
Earths in they are
insoluble to have

Working Earths fuse finely powdered
mineral with $KHSO_4$ digest with
water, filtrate

14 tons

13 " two [illegible]

70

97 20

.5) 90 / 14

135 % slag 138 tons slag

27 " 3 Hgt

9 97 "

125 tons Thirty Seven

53 tons Coarse

8

150-

3) 125 / 42 / 83

75) 11500 (153

75

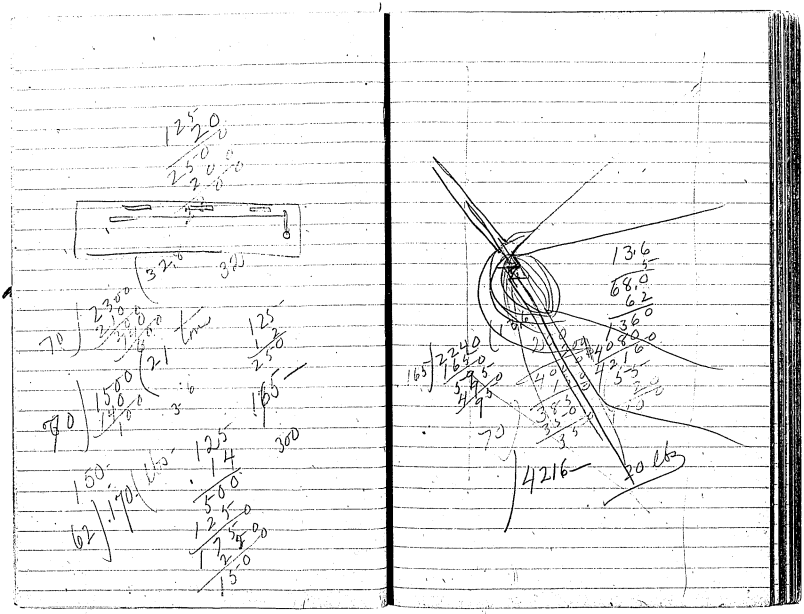
450

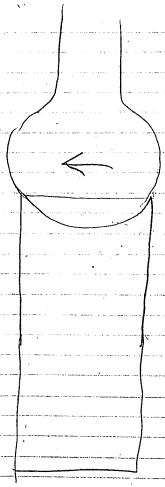
450

375

375

45



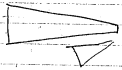


200- 47 ft

8.4 inches -

250) 1440 - (5.7 -
1250
1900
1750

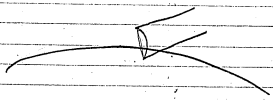
5 ft 8"

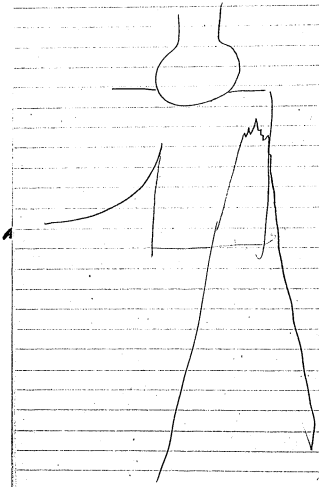


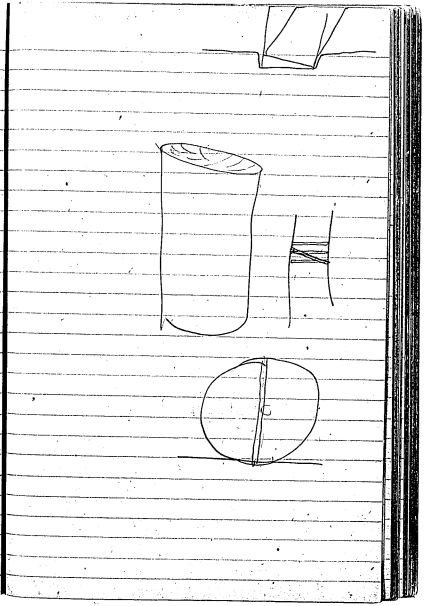
2000 (14400 (7

30) 1440 (47
120
240

1.2
7
8.4







Action of light & exposure to air & also heat on chemicals –

Quercitrin ammoniacal sol colors gradually exp to air

Quinidine HCl sulphate with excess acid highly fluor

Seeming stiff action of H_2SO_4 on Elemi & think it was I have a bottle

Quinine, shining electric when rubbed

Solution Salt Quinine bromide by sunshine — Violently acted on by electric is curious.

Acid Chromate of Quinine rapidly colors in light at 60 @ 65 cent critical point.

Hypophosphite of Quinine crystals which after heating to 100.

C gas, iff walls are highly Electric

Sulphate Quinine becomes Luminous at 110° C
The phosphorescence is likewise produced by friction
& becomes charged with Negative Elec.

Iodoquinine. Thus is fine see watts,

Quinotannic acid Electric by friction

Racemate of Hg luminous black on Exp. to light

Heat diffracted images of sun = effects extends to points where rays could not reach by direct. X Ray gave funnel fringe — try slit narrow tube

glass diffraction grating

Try Lamp blacking bulb of its low reflecting waves

As glue sugar amber trans X ~~Ray~~ but absb. Radiant heat! Try Rock salt which permits R heat to pass perfect
also use Rock salt employ if strip use it thick
Rsalt permits radiant heat from every source to pass without loss ~~and~~ no matter how thick

Alum stops most,

Hydrocyan-rosanilin See Rodhamber p.115 Vol V. perm in dark turns rose red in light

Rosemary Oil gradually absorbs O in shadow

Rosolic acid, forms salts which very easily decomp in sunshine unless with K Na NH_3 –

Ruthenic oxide liquid, dec by H_2O rapidly dec in Light

Santonin sens to Light

Ammonio Ferric Citrate dec Light prolonged developing with neutral Sal Silver salt

Use plain Chl Silver & dev by Hypo.

See Phosphine 3rd Sup Watts Splendid fel Light

1/150 000 000 —

490

0

1/64 of a grain —

40 gal.

1/30 000 of 3 —

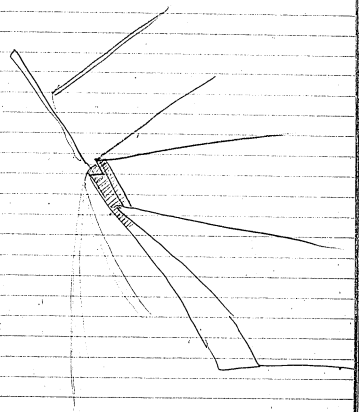
460) 30 000 (64 —
27 600
2 400

95 million —

5120
40
153,600,000

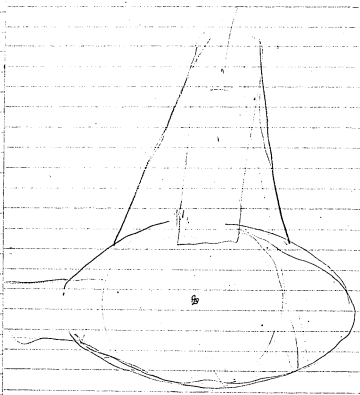
40
8
320 —
16
192 0
3 2 0
5 7 6 0
2 0 0

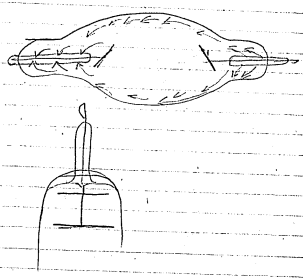
1



23 3 1

37.5





Instruments to detect different waves in the "Ether" —

Motograph —

Make mould for Regular Telephone model — Use Ear pieces, also make a Reg eye phone Reproducer eye with ear tubes & mould for chucks say 1/2" diameter, Hand driven —

make cylinders of great variety of oxides fluorides phosphates Carbonates Oxalates & Fossil materials generally —

Dark box with pencil points, Hunk Can find the old one —

Listening Telephone with fixed coil, removable Core, In place of the permanent magnet —

Cores of Iron — Nickel, Lead Tin Zinc Cobalt, Copper Silver, Magnesium Cadmium Mercury in glass tube, Aluminum Carbon Antimony — Tellurium Sulphur arsenic

Bismuth Selenium Tungsten in powder
also metted if possible, Iodine in glass
Phosphide of Iron, Copper, Lead Tin Zinc, Nickel
~~Z~~ Sulphide of Iron Copper Lead tin Zinc
Nickel Cadmium Zinc, Antimony Bismuth
Silver, Antimony, Mercury

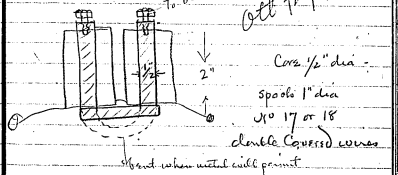
Bobbins of the following wire about some
size as used on Requeton Bell Telephone,
Copper, Iron Nickel, Silver Aluminum, Brass
~~German~~ German Silver, These bobbins
should also be removable —

Make the following diaphragms
Glass Mica, Iron Cobalt, Nickel,
Zinc Cadmium Magnesium Aluminum
Antimony, Bismuth, Silver Copper tin.
Lead, ~~Iron~~. Use a mica diaphragm
put a Cup 1/2 inch in diameter with
a Cap on Cup 1/16 deep so can put
crushed material in the Cup
or disks of material that cannot be got
thin enough for making a diaphragm

There should be no binding posts on
the Telephone as I want to Connect the Coil

directly with wires of the same metal

to bind down wires etc. 1917
Oct 7th

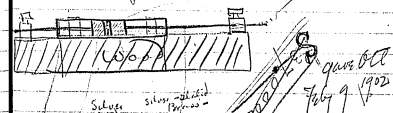


Cores to be made of following metals

Iron Nickel Cobalt Silver Copper Mercury in glass tubes Bismuth Antimony, Arsenic Lead Zinc Tin Cadmium Aluminum Magnesium Carbon Sulphur in glass Sulphides of Copper Iron Lead Nickel ~~the~~ other Sulphides that can be Cast. The spools are to be Easily removable or rather the Cores are to be removable

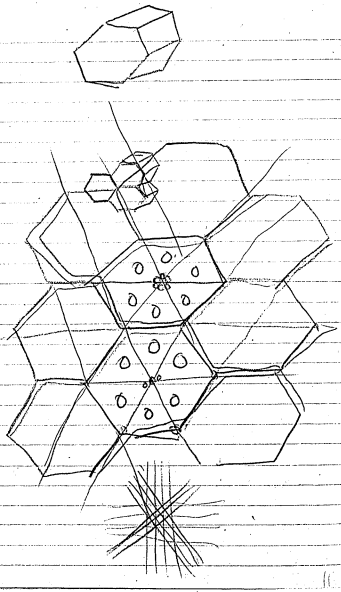
the spools being fixed to a brass
+ provided with binding
posts for terminals,

50 Branley Coherers -
Made no follows

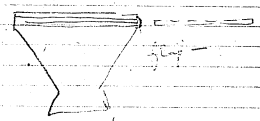


Glass Tube to strengthen + out +
carry current,

Glass held down by
Cellulose strips -
Effluent powders go into space between
Glass plugs
use different powders of all
metals + Conductors of
E = with Telephone Etc
+ Knock to decohere



2 Fluoroscope boxes, small size that we made first.

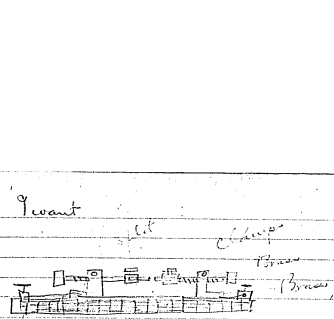


This has a thick rear No end to it as I want to slide in an opaque sheet of Rubber or celluloid paper, Aluminum etc + then slide in the frame with the crystals of chemicals pasted on the screen silk cloth, I want a model Fluoroscope made + 1/2 doz Slides before I go down to the Experiment to get right material to put crystals on

I think 5 X 5 slide with 50 spots one each will be about right

also want to insert a photograph plate

I want



Screws about 1 1/2" long
2 bending posts to connect
upright # 9 want to put
pieces of round iron into the tops
on ends of screws & bring them
together =

One —

Cell - porous Cup
Zn in NaOH, Copper in Cup with
Ferric Chloride, 2.14 Volts, precip is
formed in pores porous cell prevents
diffusion

Cell Porous Cup
Zn in Na Hydrate - Copper in porous
Cell & Sulphate Copper, precip also
formed in pores 1.5 Volts,
KOH gives much greater resolution

Zn in Zinc Sulphate
porous Cup Lead in Lead Nitrate
.6 to .7 Volt,

Zn in ZnCl
porous cell with Ag in Ag Nitrate
1.5 Volt very low res

All above form
precips in pores of Cup
and they Processable

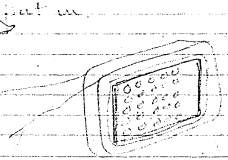
A Black hydrated Uranium
Oxide $UO_3 \cdot O_4$ thrown down
by Electrolysis of Acetate,
Formate or Nitrate Uranyl
Make some + test in grid

Investigate the fraction
on paper when over various
metals

Sodio ferric Oxalate is beautifully
Crystalline & very sensitive to light
use this and look up a list of
other salts to make dry plates
for photo from X rays from Crystals

Make 30 cc 50 crystalization of gold forming Cobalt
When same is in solu and
Very strong Current passing
also in very strong Magnetic
field —

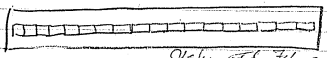
Make a Coil of heavy
wire so the slides can be
put in



Also try strong reverse Current
through solu — also dissolve
Hg Sulphide for —

Also try slides in strong
magnetic field —

John Ott Continued



John Ott Feby 9 1902

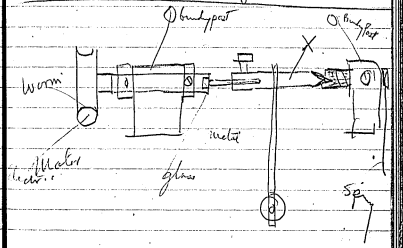
This is a metal sheet of brass
with flat pieces of metal soldered
or fastened on. Each piece is
1 inch square & 1/8 thick
The top are flush & smooth, polished

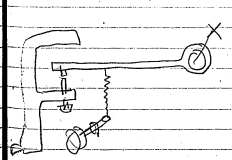
Use Iron Nickel Cobalt, Silver Copper
Lead tin Zinc Cadmium, Magnesium
Aluminum Bismuth Antimony
Brass German silver, gold plated on
Copper, platinum thin sheet soldered
to Copper, Lead, Tellurium,
&c

Experiments Phalogy
The conduction of Metals

Try some metal compounds chemists of
[illegible] collectively [illegible]
little [illegible]

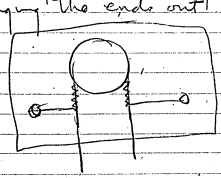
Collect ~~all~~ make all the
Compounds (dry) that phosphoresce
or fluoresce to light +
make ~~slides~~ of them —



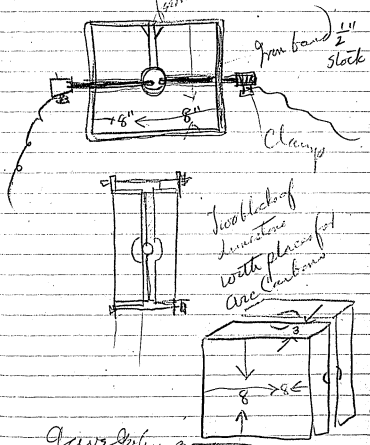


Jarvis to John Ott 9 Feby 9 1902

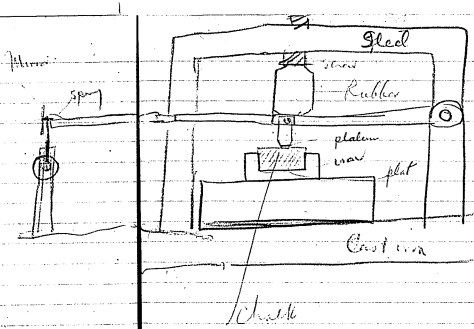
Make a number 12 smooth drawn iron wire Tape it with Rubber Tape, then wind one layer of No 17 or 18 double Cotton covered copper wire the whole length The wire is to be 200 feet long — ~~after~~ the wire is ~~being~~ wound Tape over the Copper wire, Then make a bobbin 10 inch in diameter 2 inches wide and wind a spool of the wire just as you wound a magnet bringing the ends out



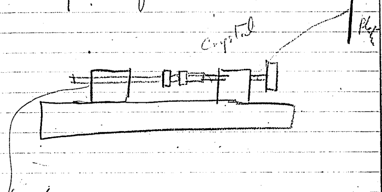
Want an electric furnace



Gaw Gitu Ott
Feby 9 1902


Glass
Rubber
platinum
wire
plate
Cast iron
Sheet

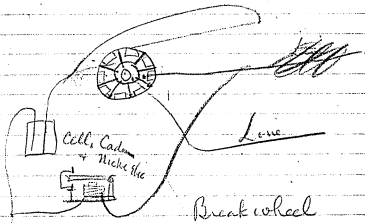
Light or fluorescent Coherer? 5



Earth: Rapidly oscillating waves passing through crystal gives light by electrical excitation

These [illegible] have another
Apparatus
which will answer
for these

Storage battery Relay or receiving Instrument



When wave comes over it
charges Battery then battery
throws over in a Sender
Its a discharge —
accumulative principle should be
very sensitive —

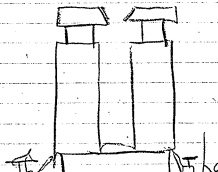
Invented a light for [illegible]

Photograph in Sensitive Emulsion [illegible]

Some arcs between the same metals to get a monochromatic arc & [illegible] to see if fluorescence also by X ray

[illegible] fluoroscope [illegible] Some photo plates are [illegible] sensitive [illegible]

Make photo dry plates with different chemicals sensitive to light



Large Magnet about same as on a No 4 or 6 Edison Dynamo with Movable pole pieces Mounted on a Wood Base

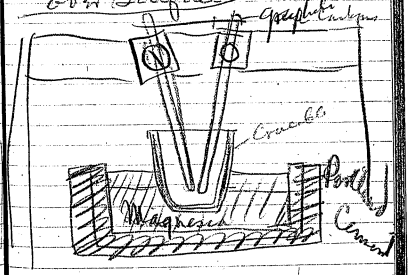
Given to John Ott

Feby 9 1902

[illegible] chemical
[illegible] Chlorate
Chlorate [illegible]
[illegible]
[illegible] Oxides —

Continue the [illegible]
Experiments with alloys
of the [illegible] Melting [illegible]
Can make them in Graphite
Electric furnace —
also in liquid gas furnace

A Malograph with a platinoid
Press cylinder to take
pleochf Chalk, so surfaces
Can be varnished with various
Materials to make Coatings of
Substance Can be electroded
over surfaces

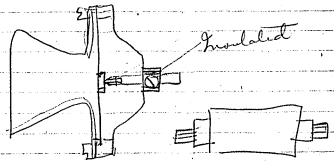


Electric furnace
Geo. Gibbott Feby 9 1902

Concert

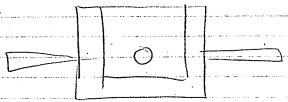
Phonograph, with a Cylinder ~~tube~~ of Brass to take the place of the record with a smooth Horizontal surface — This shell is to be dipped in different Emulsions to form a Coating — The travelling arm is to have a piece of rubber with a ~~[illegible]~~ arm resting on the Cylinder with a point of Tellurium. The Rubber is to insulate it. 2 binding posts are to be put on plugs one connecting the Base & the other the insulated arm with the Tellurium —

Regular Edison telephone transmitter –



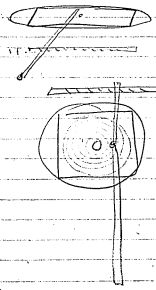
This telephone is to use a very sensitive Thermo Electric alloy – Coil with one layer of No 12 wire & secondary of 36 wire 10 or 15 layers

A furnace about 1/2 the



size of the one in the Chemical Room where Hatchett's Works, 4 blow pipes and very thick fire brick. It is to be portable & to get a very powerful heat,

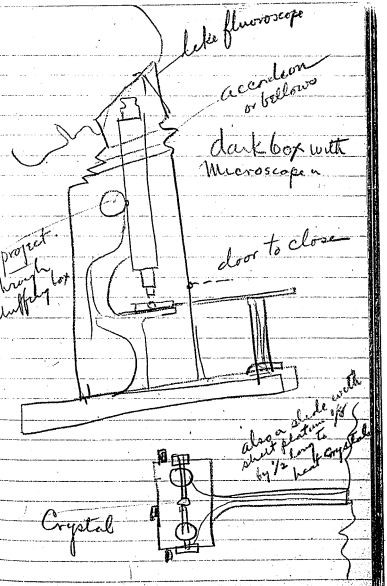
Get a gramaphone with clockwork



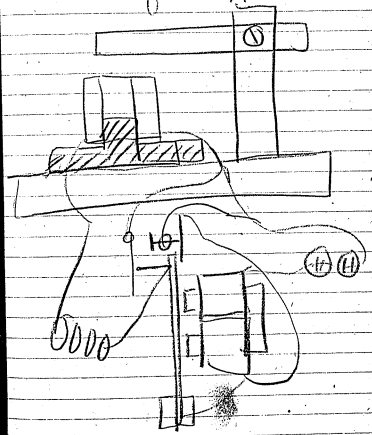
There is to be laid in the gramaphone disk a dry plate photographic a screw works the arm. The arm carries 2 platinum points close together mounted from each other. The current passes from one point to the other through the film in the dry plate.

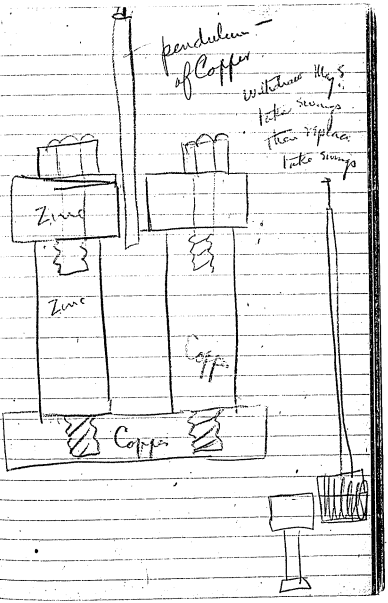
Dabbs to make a
[illegible]
[illegible]
3 [illegible]
to [illegible]
[illegible] 10 [illegible]
[illegible]
[illegible]
[illegible] 2 [illegible]
[illegible]
through [illegible]
[illegible] at X [illegible]

Insects to be used to
detect diffraction



Etheric force apparatus




pendulum of Copper
Zinc
Zinc
Copper
Copper

good) - find a crystal that becomes luminous by the current for a fluorescent Lamp. —

Remembering the phosphorescence of Edison's on hot stove, try all crystals on hot plate in dark room. Coy plate heated by Current, say thin sheet platinum, probably most of crystals will be anhydrous + those made by bringing temps up to red heat or more + also Crystals from furnace like the old Calcium — This would make it possible to get a fluorescent Lamp by heat, using a Vacuum + Carbon,

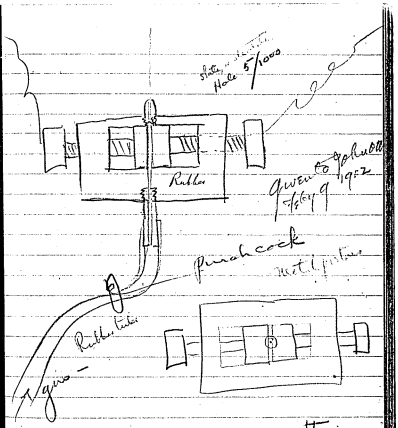
Dont fail to make many Crystals on the theory that a heavy or high atomic weight atom is to be combined with the very light ones in the Crystal so that when waves in the Ether pass thro the Crystal the inertia of the heavy atom will cause it to take up very little of the motion while the light atom will partake of or be set in motion to a greater extent & thus there will be an interatomic load swing within the Crystal producing a new wave say light,

Traces of oxide of platinum or platinic hexachloride salts Uranium Lead, Thorium, Etc,

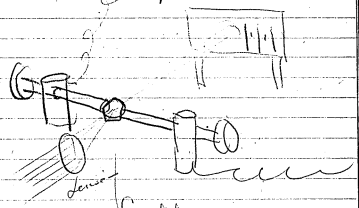
---

With X ray 48 Hale slides, make a lot with mixed sands from placers also with Crushed Rocks with view of detecting natural fluorescence

Chemical action of a non
conducting acid on Zinc,
should be able to increase energy
in proportion to value or coefficient
action. This process may be
the basis of X-ray
Electrolytic Chemical
Research machines
Using Tissue paper separating
Zinc & Cu & Zinc & Cu
or Zinc Cu or immersed
in say Zinc & Cu
Organic acids or Chloride of
Iron in Ether, or other
Organic acids in Ether or
Iodine in Alcohol Solution
use dissolved glass or
well rubber wool Tube
Electrolytic solution,



Gave to Prof. Ott July 9 1902



this beam of light passing thru Crystal, any variation E or elsewise will vary the pressure on Crystal & deflect the beam of light Spot to flicker on Scale – ought to be very sensitive –

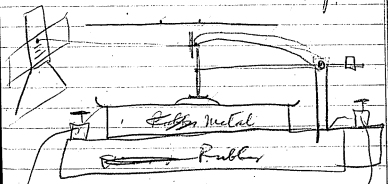
Uprights ought to be very rigid

Get some Radium, Actinium & polonium

To work by change of surface tension in non electrolytes

mercury

Liquid

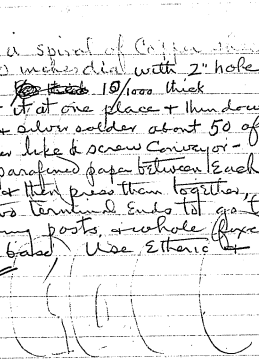


OK gave to John

Feby 9th 1902

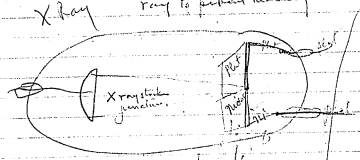
Crystalline some X-ray good
Fluorescin in water Cathode
Ca Wolfe Uranium or salt
Fluorescent material -

Make a spiral of Copper strips
~~12~~ 20 inches diel with 2" hole
Copper ~~[illegible]~~ 10/1000 thick
Split it at one place + thin down
top + allow solder about 50 of them
together like a screw conveyor -
put paraffined paper between each
turn + then press them together,
the two terminal ends to go to
binding posts, + whole fixed
to a board. Use Ethanic +
Etc =

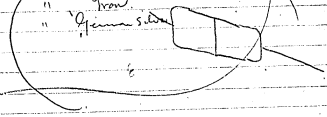


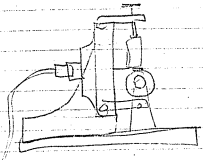
Momentary flashes of X ray to photo-electric

X-ray



Abs. plot + Al
" + Ag
" + Lead
" Zinc
" Magnesium
" Iron
" Gamma solution





Small Motograph (12) Reg Malogh
with small chuck 3/8 dia
1/8 shaft, 1/2" long Chalks
Cut from crystals which were
accidental etc where big
Reg chalk Cant be used —
just displace big chalk
Shaft worm etc & put
in the new looking small
chalk —

Note if wires are alternin
mag Put in Cell with Alum
electrode in it,

It may be that Radium
Polonium Etc is nothing
More than Regular Chemicals
with slight impurities of
Reg Chemicals, Same as I
proved that MCF with Edison
small tube in Agcl crystals
in dark with it Caused it
to phosphorence - long time
after X ray on it.

Hence Use Tungsten,
Uranium platinum gold
+ plat metals, thorium,
Lead, Thallium, to be
added in traces in general
proportions in crystals in
dark with alkali metal
+ others. Make 30 or 4 slides

Try Experiment with Radium to
guard it with various
substances. Will shut out
waves in the Ether Coming
all the time from a place
which will cause Chemical
fluorescence

When all the fluorescent slide are
exposed to are have hood which
can close down quickly on are
+ make room dead dark -
at each exposure food nitr are
Metal wires of all metals, see if
say Lead Monochromatic Light
will cause some particular
Crystal in time with Vibration
of Lead to respond a fluorescence
Also try powdered dry Chemical
Salts of metals to be blown into
are,

Materials for Photographic Cylinder

Phosphate Lime	Uranate Soda
Borate "	Thorium oxide
Oxalate "	Zirconium "
Sulphate "	Oxalate Uranium
Cyanide "	Phosphate "
Tungstate "	Borate "
Molybdate "	Tungstate "
Chromate "	Molybdate "
Manganate,	

~~Deposit~~

Crystals very small good
Crystalizing Chemicals
unfocused of strong arc
light & closed is and
4 hours with Daine
Golden in dark see
in Crystals the same

Crystals are about
between electrodes with
very heavy current passing
also at same near
arc light,

Substances for Malographs Cylinders

Sulphate lead,
Carbonate Copper
" Zinc
" Nickel
" Magnesium
" ~~Aluminum~~
" Tin
" Bismuth,
" Silicon
" Barium
" Cadmium
Sulphate Barium
" Silicon
Magnesia Oxide,
Prussian Blue
Nickel Hydrate
Ferric "
Tin "
Aluminum "
Magnesium "
Antimony "
Bismuth "
Copper "
Lead "
Barium "
Strontium "
Lime "

Make a revolving shutter put arc light in a cupboard + have motor to revolve shutter 2 or 3000 times a minute, + test slides etc,

Make a white with all the photomicrographs —

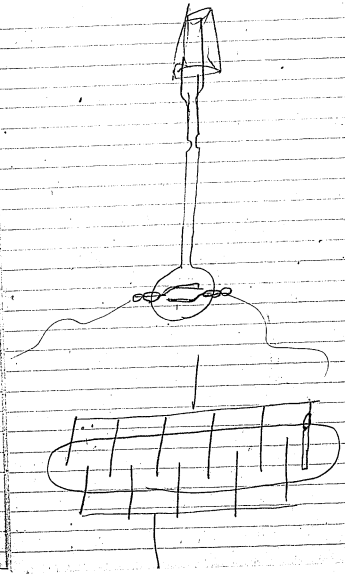
Make

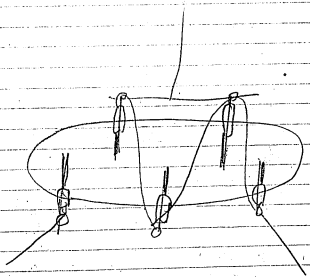
Substances for Metough Cylinders

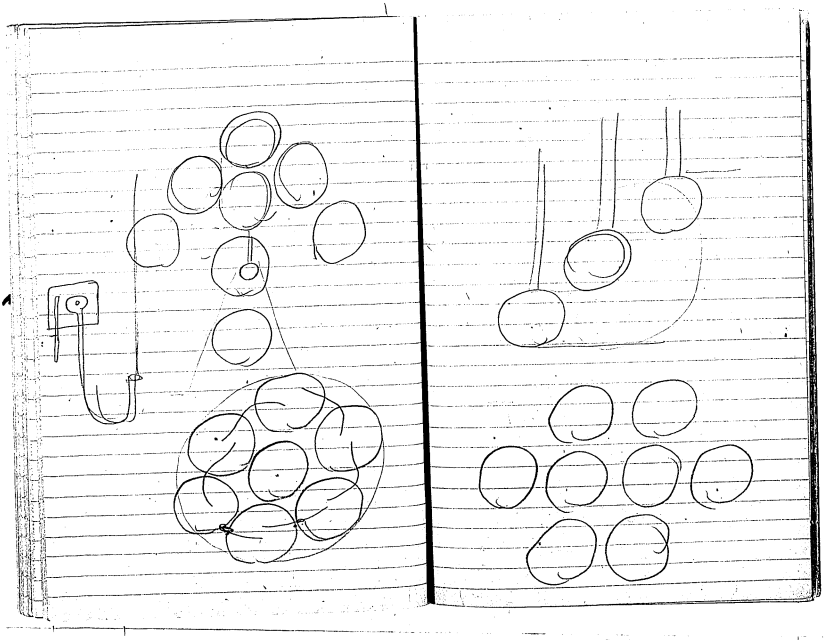
Cyanide Copper
Tin,
Zinc
Antimony
Bismuth
Iron
Magnesium
Aluminum
Cobalt
Nickel,
Cadmium

Phosphate Cadmium
Borate "
Sulphate "
Chromate "
Molybdate "
Stannate "

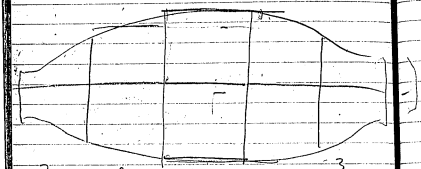
Continued on ~~Another page~~ ~~page following~~ page following →







24 inches

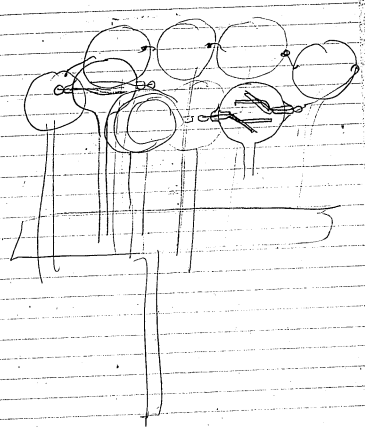


3 6 6 6 3

16 –

75
75
375
525
562

Equals 10



240 000 000

5000
12 60
30 000 00
36 00 00

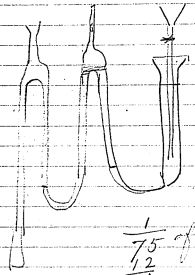
360 000 | 240 000 000 | 60
216 000 000
24 000 000

120 | 8000 | 133
60
7000
1800

320 | 8000 | 320
7000

320 | 2000 | 6.5
1820
1800

8000
5000
12 40000000
480 000
2 240,000,000



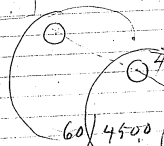
1/75 of sec
12
150
75
900

1/900
4
3600 ft-lb

15

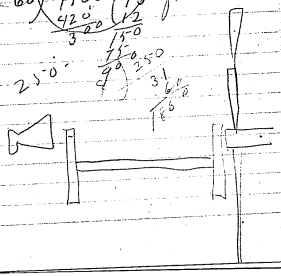
4 ft.

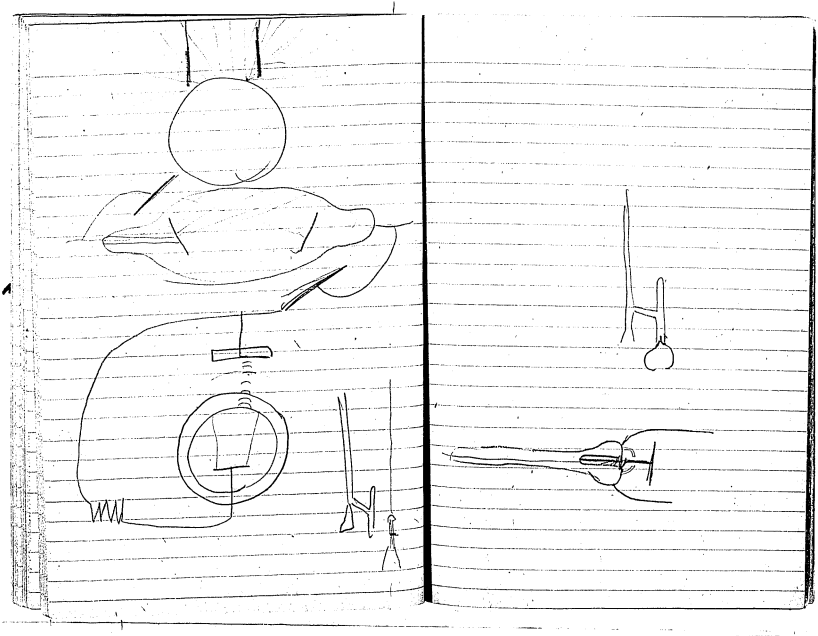
1500
3
4500

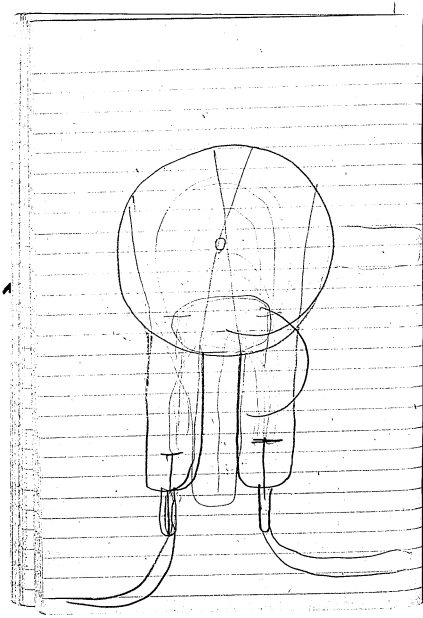


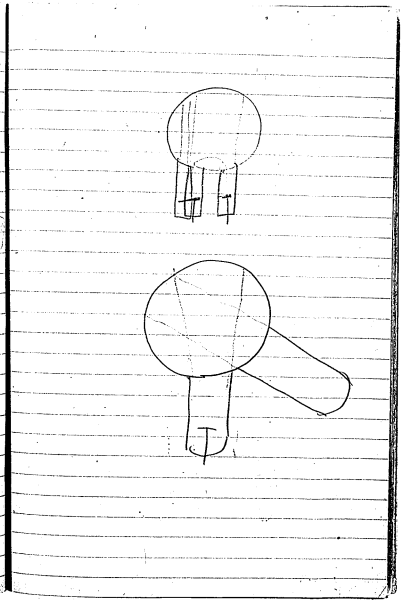
60) 4500 (75 ft sec
420
300
150
150
900
900
300
300
300

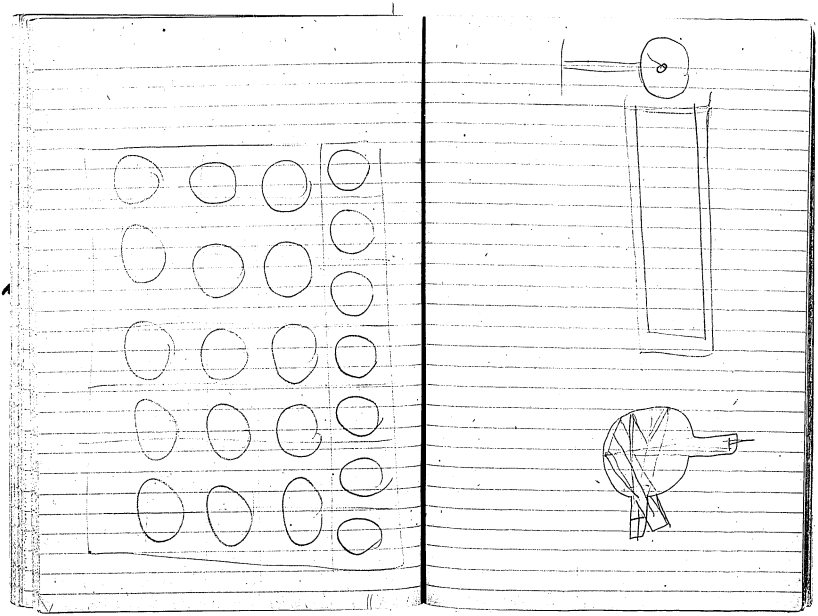
25

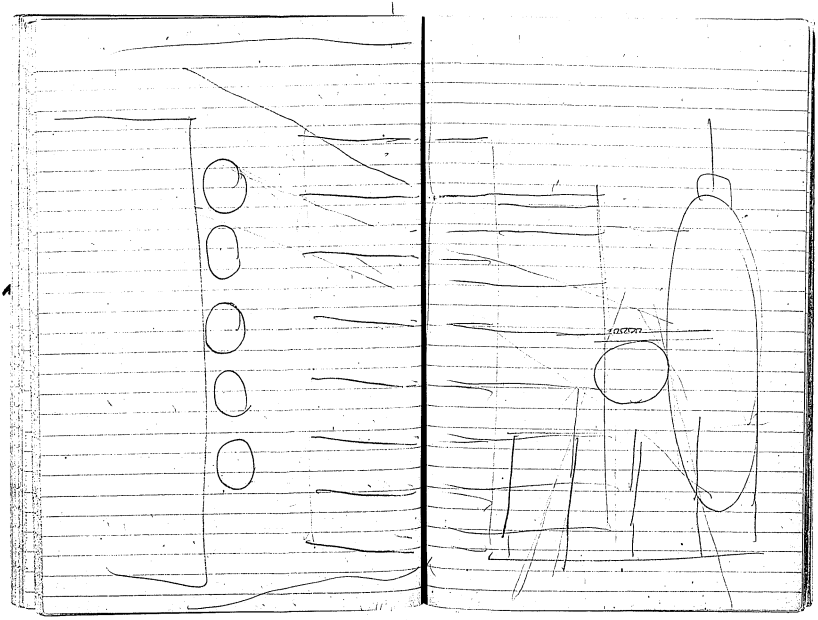












Phil's Car -
40.00
23.00
80.00
30.00
212.00
25.00
70.00
80.00
255.00
65.00
15.00
45.00
15.00
943.00

Apio - 1351. 130.80 1381.80

Hand - 17 105.00 122.00

State - 1.58 169 9.65 9.30 16.12

Furn. & Fix - 32.16 1.20 12.70 4.98 33.69 16.75 1.60 2.95 46.40 7.33 67.15 18.40

Clothes - 10 30 89.50 30.00 22.00 15.00 15.00 166.00

Tel. - 15.85 16.80 18.70 16.75 64.55

Entert. - 1.87 41.65 32.20 4.50 14.25 4.95 15.00 28.06 90.48 42.35 262.74

Exp. 9.85 246 .50 240 9.55 7.65 2.40 3.75 6.40 .25 7.31 31.96 14.45 55.21

Chas. 31.83 129.14

Gas - 3.00

Chris - 6.80 103.08 109.88

Reg. - 2.16 1.24 3.52 5.62 .80 1.23 8.31 .50 2.00 14.78 2.72 2.05 5.21

Dry - 19.12 3.30 17.70 8.45 5.60 41.00 25.95 123.85 102.40 67.20 15.16 501.61

Lanni - 4.09 1.60 18.90 8.25 50.18 12.00 949.12

Lum. 199.46 286.95 326.00 326.79 40.61 73.90 108.00 3.35.06 24.98 90.51 6.00 123.98 11.00 3046.68

Gift - 1.35 668.74 924.65 108.00 26.21 1767.15

Lib. - 5.46 13.57 53.25 7.50 1.50 33.88 1.80 2.93 665.1

Water - 139.70 8.50 148.20

Ill. - .88 32.00 1.95 2.25 .81 37.39

Edison - 304.00 9.11 2.90 239.36 7.00 12.00 39.03 120.91 375.65 6.00 45.46 10.00 175.22

Sales 184.00 189.00 184.00 184.00 224.00 202.00 139.00 84.00 255.50 64.00 167.00 68.00 254.00 199.00 149.00 2580.00

Gen. 150.00 110.00 1507.18

Nun 1200. 600. 200.50 200.00 200.50 201.18 100.00 100.00 100.00 100.00 50.00 169.05 150.00 203.25 401.00 185.00 118.00 181.15 150.88 140.00 122.62 110.85 2161.80

Fur 218.13 34.44 31.05 178.20 26.35 51.75 20.25 15.70 27.15 84.75 28.36 (666.37)

Sight - 89.86 88.40 68.86 94.45 78.77 73.72 2.91.00 93.72 392.00 89.50 78.66 103.11 82.65 1541.40

19.10 2.00 205.50 119.04 15.35 173.65 11.00 11.75 21.00 67.25 8.70 19.84 112.16 9.09 (736.93)

Mach. 13.88 17.25 69.72 15.00 4.10 76.50 21.38 2.10 3.00 18.65 (244.95)

Chas. 43.56 11.03 24.19 102.26 8.34 11.47 48.36 64.66 19.58 140.00 2.26 5.60 11.82 349.78

Chas. 84.27 15.00 162.96 13.75 40.55 3.33 167.21 162.00 262.04 761.15 930.27

Charles
31.40
16.44
86.55
48.42
10.35
50.50
20.25
2.50
3.00
17.05
286.46

Take X Ray photo with
Dry plate formed over with
Ed. Chemical Compound of
Copper Iodide, Ed Crystal
Iodine, Iodine Chloride
Iodine, Iodine Tri Some of
the Mercury Bromide
Other Salts that will not
affect the Dry plate,

Have Warths Dry plates
~~These~~ films in Mind and
Plates Made of the Same
of Lead Tin, Zinc Aluminum Magnesium
Copper gold Platinum Silver, Chromium
Zinc, Tellurium Antimony, Bismuth
Tungsten Tin
Mercury Iron Manganese Cobalt
Silicon, Palladium, Iridium
Osmium, Ruthenium
Thallium — Chromate
Sulphide Copper, Etc
Sulfide ~~Iron~~ Iron, Sulfide Mercury
Phosphide Iron Copper
Iron Nickel
See previous page

X Experiments Continued.

Make some printing frame
So slide of Crystal Iodine
be put in, also a Dry plate
photo, w/o paper paper
So large number of slides
Can be exposed at once
Make 50 of them,

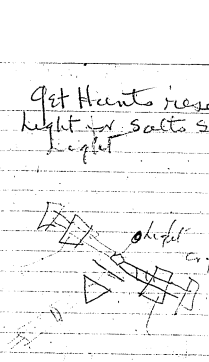
Make some Blueprint dry
plates,
also Bitumen
also Bichromate Gelatine,
find all the other other
that will plate with Organic
matter.
Vanadium Etc,

If it is possible to coat a wire with different salts in rotating them to form filament it would be a great thing.

Take say 36 coat & bring [illegible] crystals apart
12 in strong red light +
12 in darkness
12 in strong blue violet (red) light
12 " " " in arc light
Put the 48 in a suitable [illegible] chamber
Have the 4 of same kind together to permit comparison

For testing [illegible] for photographs a heavy discharge from Buchtel jar discharge should be superior to arc light because can make terminal of different metals, gases than if arc is used + the room for some of parts amazing

Get Hunts researches on light & salts sensitive to light



Y — Yamylene in most of E or X passes thro crystal
" replace same with magnet
use diff [illegible] of salts of [illegible] in light

[illegible]

[illegible]

[illegible] Ethiopia [illegible]

On the left hand [illegible] use of [illegible] tube [illegible] a wire [illegible] with a Crystal [illegible] the Current Vibrations from Coil is passed [illegible] Silicon [illegible] a atom takes place in crystals

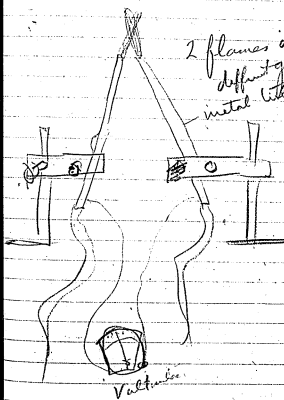
Use the Crystal [illegible] with made of [illegible] a [illegible] Ultra X ray waves to get sounds on different [illegible] which fluoresce [illegible] etc —

Make a Mica [illegible] or prepelling Iodide paper use pin point [illegible] paper + [illegible] use a lot of new salts phenol ft + [illegible] of CLK [illegible] as a X indicating [illegible] get a better quality of paper smooth or regular paper passed through glue or gelatine, with the Salt in Solution so it will never get gone dry but be a Carbonclay by prepe Cobalt + Ni hydrate in gelatine or paper soaked in Ni or Co Salt + prepe with paper by KOH or [illegible]

+ dried, Current makes block
Mn_2O_3 or Co_2O_3 may be
sensitive, perhaps MnO_2 hydrate
+ PbO etc. BiO hydrate precip
on paper with slight KOH left
on would be removed to higher
+ block O_2 + Co_2O_3 may somehow
to a Current,

A phonograph with metal
Cylinder nickelplated would
be better than paper as
the galvanic albumen, magnesium
Silica Soda ~~[illegible]~~ Calcite
films Could be put on by
dipping + O_2 would smooth
then the mark would be distinct
+ have like to concentrate the
Energy — possibly a film
could be found moistened with
a chemicals that would cause
a permanent change in surface
+ permit reproduction of
sound by diff — of
friction, using telephone with
record — or 2 points used
+ Fe + Ni salts used the

recorded + 2 other points
run over discharge the storage
battery —



good - for making X

100 feet of 1/16 wire, made of ~~Iron~~ Iron + Copper braged together to form one length that is coiled so all the Iron is on one side of bundle + Cop on the other, the two Ends come out. Coil is tapered ~~[illegible]~~ 9 - 2 layers of Insulated wire wound over 4 inches of Iron side about 4" on Cop side, the a sort of Mica tube thrown to make X —

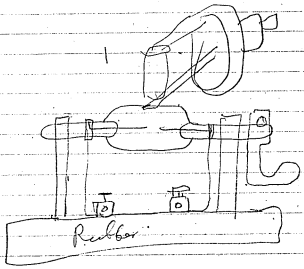
Investigate the Argallaceous smell + Especially from recently fused alumina also pickup silicate of alumina

It may be possible that the Z screws where I put crystals Galvan. one should or both have Easily replaced ends of diffrent metals, as the effluvium may be altered by the X passing from a certain metal into the crystal

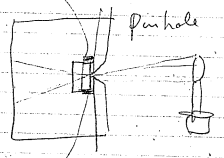
Make all of the X fluorescence by fusion of Crystals together in Crucible

Also make several hundred Salts + double salts by fusing Crystals together

Chl Na + other chlorides
KCy Mattern + other Cyanides
Chlorides, Iodides, Fluorides
Sulphates, Nitrates, etc. should be a great chance here for good
Results for X Ray + UV



Motograph with point running on outside of X ray tube & using either metal or leather fraying or sandpaper stuff or Chalk etc.
To dubes – 2 of which are to be 4 thousand higher than X ray TE no spark can get thro –



Refraction from heavy to light substance X or Electricity stress one or the other & bend the ray thus moves the beam used as a Receiver

Try fill the Thermo Alloys in a shrimp & Bifular near poles of big mag to see if any alloy is magnetic –

Use 500 deg hot plate & Ice water & dash cold Thermo Alloys with various X Receivers with Vibrator in to see if an X Current is made by heat –

Make about 50 tubes

Then exp & fill with fused or dry fluorescin (full) — & sphere tube to X ray stage to outer receiver for X ray waves & incidentally to syst of fluorescent lamp.

Make the several well known luminous phosphorescent sulphides —

Crystalize some of the chromic & platinum salts in the dark & displace in bright sun & take both in dark room & compare —

Try the best thermo alloy Galvanometer & coil surrounded by a coil with strong current also in strong field — also with P pole of mag but not mag pole at (hd) & U.C. Vana,

Try °200 deg 15% sol KOH, with different metals & alloys to get a KOH & a metal junction see degree of voltage if any are found. Try & work up a combination with an alloy or metal whose oxide is insol in KOH,

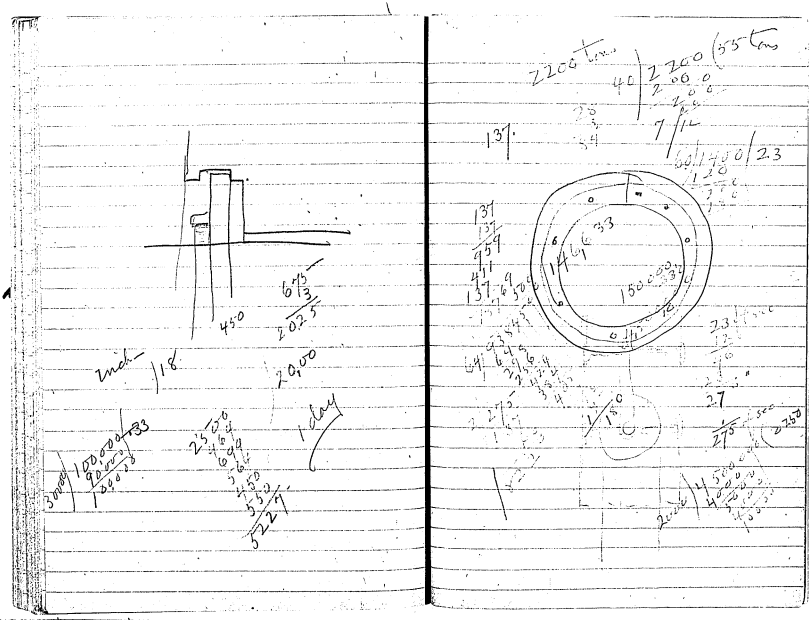
Perhaps a metallic rod immersed in an acid which eats it will have a molecular tremor set up & send a wave out. use a non corrosive metal & test with X Receiver

With Electric furnace
Make a line of alloys of all
Metal, with Tungsten & same
5% proportion as those previously
made,

Also with Chromium
Molybdenum
Iron
Nickel
Cobalt,
Cerium
Manganese
Silicon
Titanium - Rutile etc,

Photo X = Tungsten Oxide in
Connection with Organic Matter
is reduced to Blue Oxide
easily by LIGHT ?

Chl. and 40 } 40
Bromd " 40
Iodide " 40
Cy 40
Ferrocy 40
Ferricy 40
100 acids + 40



256 506

2.715 198 446

1125 318 504

450

450

1125

67

191

251

31 314

2375

2375

1187

1.12

2112

4224

112

2112

4224

446054

1622

125

75

475

564062

506

506

3036

2530

256036

446

446

2676

1784

1784

198916

564

564

2256

3384

2820

318096

Madlin 21 6 3/4

Hima 22 1/2 7 1/8

Mama 22 1/2

Tuffy 21 1/8 — 6 3/4

E 23 3/4

N-02-02-09

21 1/8

169 1/8 π

21

21 1/8 3 1/2

6.75

70

2

198

1847

2495

2.25

314

2900

725

2175

276.50

314

7

2198

314

66

884

1884

20724

[ITEM FOUND IN BOOK]

Laws of the =

Theory Ether –

1st Extending throughout the universe without end are lines of solid matter perfectly elastic & fixed in space, forming a network throughout the universe, except by Gravity

2 These lines are meshed together leaving space between devoid of matter, J

3 The solid ether strings are probably are probably as close together 1/10 the wave length of ultra violet light when there is no current, of the luminous, 1/10 vibration quicker or faster

4 = Were there no matter in the universe but the Ether lines, they would all be drawn to wards Each other

5 = Insertion of matter which is connected to the net work – causes a distortion of the Ether lines so that if a body was suddenly Created it would tend to straighten the Ether lines + this straightening would extend throughout the Universe

6 Different Kinds of matter Bend the lines more or less,

7 Exchanges between one kind of matter

[ITEM FOUND IN BOOK]

7 and another to form a Combination also tend to change the relative amount of slaughtering of the lines.

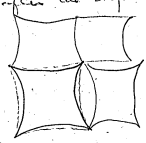
8 – While such a Combination as in 7 is going on the lines are set in Vibration in the act of slaughtering & these Vibrations extend & effect other matter, globally throughout the universe, where there no other matter, they would extend thru' space at once & not slowly –

9 – ~~[illegible]~~

10 – The Creation of a body of matter the size of say Jupiter would Cause such a slaughtering of lines that this would cause gravitation on the Earth to increase to a weighable Extent, the Ether lines in free space would be compressed & hence other matter would be pressed Together with stronger matter tending to proceed to points where the Ether lines are slaughtered –

[ITEM FOUND IN BOOK]

11 Zinc straighten as lines very little,
Oxygen very little but before the Z
Combine a reconstruct is formed within
the Ether meshes that tends to straighten
the lines or produce a pressure throughout
space. The act of straightening causes
every other time in the universe to
straighten also millions of these Combine
takes place per second, waves go with
along the Ether. If the Combin is small that
the straighten of the lines are small,
the number of waves per second will be
small, etc Zn + O, gives more waves
per second than Mg O –
Their temp is simply matter taking up
these waves or by inertia continuing
their long after the original have
ceased.



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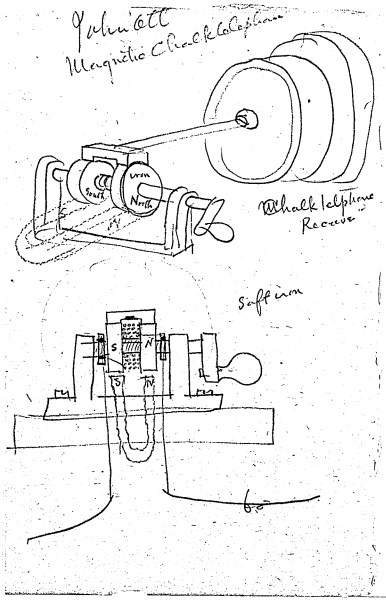
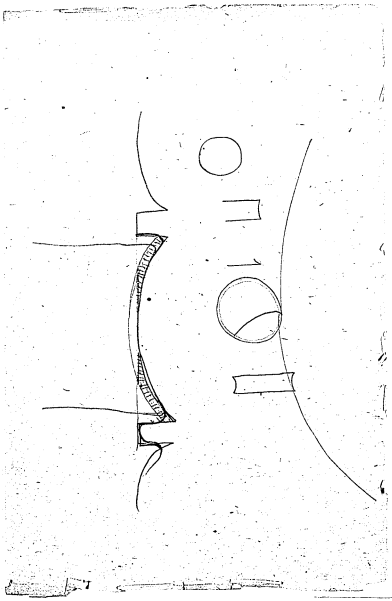
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